

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

1999
DS CTH

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

To:

HARDING, Charles Thomas
D. YOUNG & CO.
21 New Fetter Lane
London EC4A 1DA
GRANDE BRETAGNE

Date of mailing
(day/month/year)

1 3. 09. 99

Applicant's or agent's file reference
P/4642.WO CTH

IMPORTANT NOTIFICATION

International application No.
PCT/GB98/01627

International filing date (day/month/year)
04/06/1998

Priority date (day/month/year)
04/06/1997

Applicant

OXFORD BIOMEDICA (UK) LIMITED et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

 European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer

Vullo, C

Tel. +49 89 2399-8061



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P/4642.WO CTH		FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/GB98/01627	International filing date (day/month/year) 04/06/1998	Priority date (day/month/year) 04/06/1997	
International Patent Classification (IPC) or national classification and IPC C12N15/00			
Applicant OXFORD BIOMEDICA (UK) LIMITED et al.			



1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 11/11/1998	Date of completion of this report 3. 09. 99.
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Meyer, W Telephone No. +49 89 2399 8157 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB98/01627

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

Description, pages:

1-65 as originally filed

Claims, No.:

1-39 as originally filed

40-46 as received on 20/07/1999 with letter of 16/07/1999

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
☐ paid additional fees.
☐ paid additional fees under protest.
☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB98/01627

68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

☐ complied with.

☒ not complied with for the following reasons:

see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

☒ all parts.

☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims
	No:	Claims 1-23, 26, 27, 29, 31, 32 and 34-41
Inventive step (IS)	Yes:	Claims
	No:	Claims 24, 25, 28, 30, 33 and 42-46
Industrial applicability (IA)	Yes:	Claims 1-23, 26, 27, 29, 31, 32, 34-41
	No:	Claims 24, 25, 28, 30, 33 and 42-46 (opinion reserved)

2. Citations and explanations

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item I

1. The amended **claims 40-46** fulfill the requirements of Article 34(2) PCT.

Re Item IV

2. Reference is made to the following documents:

D1: WO 96 34969 A, 7 November 1996
D2: WO 96 15238 A, 23 May 1996
D3: WO 94 11513 A, 26 May 1994
D4: US-A-5 559 099, 24 September 1996
D5: WO 96 30512 A, 3 October 1996
D6: WO 89 07947 A, 8 September 1989
D7: The Journal of Biological Chemistry, Vol. 272, May 1997, p. 12430-12436

D1 was not cited in the International Search Report.

3. The international search report has been drawn up in respect of the entire international application, but the IPEA finds that the application does not comply with the requirement of unity of invention (Article 34(3) and Rule 13 PCT).
4. An international application must relate to one invention only or to a group of inventions so linked as to form a single general inventive concept.
Unity of invention is fulfilled only when there is a technical relationship between the inventions involving one or more of the same or corresponding special technical features, special technical features being such features, that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.
5. The technical relationship among the independent claims is the provision of vector comprising a nucleotide sequence coding for a tumour interacting protein.
However, this relation cannot be accepted to consist of special technical feature as defined above since it does not define a contribution which each of the different

claimed inventions, considered as a whole makes over the prior art. In fact, vectors comprising a nucleotide sequence coding for a tumour interacting proteins have already been disclosed in the prior art (D1, Abstract; D2-D7). Thus, this feature cannot be accepted as a special technical feature as required by Rule 13 PCT.

6. Consequently, the technical relationship of the independent claims does not embrace a special technical feature, within the meaning of Rule 13.2 PCT. The following inventions have to be considered separately:
1. Claims referring to a vector and its product comprising a "tumour interacting protein" (TBP) (**claims 1-6, 27, 29, 31, 32, 35, 36, 39-44 and partially, claims 7-19**)
 2. Claims referring to a method of delivering a vector comprising a nucleotide sequence coding for a tumour interacting protein (**claims 20-21 and 34**)
 3. Claims referring to the use of a vector (**claims 22-23, 26, 37, 38, 45 and 46**)
 4. Claims referring to a method of treating cancer (**claims 24, 25, 28, 30 and 33**)
 5. Claims referring to a vector and its product comprising a "tumour associated cell surface molecule" (TACSM) (**claims 45, 46 and partially, claims 7-19**)

The technical contributions of these groups of claims are different and are not directly linked or corresponding so that they could be considered to contribute a special technical feature as defined in Rule 13 PCT. Hence, the application lacks unity under Article 34(3) PCT in the light of Rule 13.2 PCT.

7. **The Applicant's attention is also drawn to the following points:**

It appears that when filling this application at the EPO a further lack of unity a posteriori (e.g. each individual vector and its expressed peptide could be considered as a separate invention) might be raised:

The technical relationship among the claims is the provision of vectors for delivery of genes encoding tumour binding proteins (TBPs). However, vectors for the delivery of genes encoding tumour binding protein (TBPs) have already been known in the prior art (see e.g. D1-D4). Consequently, the application lacks unity a posteriori.

Re Item V

8. The subject-matter of **claims 1-23, 26, 27, 29, 31, 32 and 34-40** is not new in the sense of Article 33(2) PCT. D7 discloses according to

- (i.) **claims 1-19, 27, 29, 31, 32, 35, 36 and 39** a vector (or a gene delivery system) comprising a nucleotide sequence ("NS") coding for a hybrid between the variable regions of 5T4 SA (the "TIP") the constant regions of the murine IgG1/k antibody C242 fused to a hybrid between staphylococcal enterotoxin A and E (the "NOI") (D7, p. 12430, 2nd column, 4th paragraph-p. 12431, 1st column, 1st paragraph).
- (ii.) **claims 20-21 and 34** a method for delivering an expressed hybrid to a tumour cell (D7, p. 12431, 2nd column, l. 20-33)
- (iii.) **claims 22-23, 26, 37 and 38** use of a vector to deliver a NOI to the tumour (D7, p. 12431, 2nd column, l. 20-33)
- (iv.) **claim 40**, a process for preparing a TBP (D7, p. 12431, 1st column, 2nd paragraph).

It might be argued that an alleged aspect of the present invention is the in vivo/ex vivo transduction of monocytes/macrophage or myeloid cells or their progenitors with genes encoding TBPs, such as tumour binding fusion proteins. However, the claimed subject-matter is not at all limited to this alleged technical feature.

Consequently, **claims 1-23, 26, 27, 29, 31, 32 and 34-40** do not fulfil the requirements of Article 33(2) PCT.

9. The use of internal arbitrary designations "5T4ScFv.1, 5T4Sab1, 5TvScFv-IgG, 5T4ScFv-IgE1, B7-1.5T4.1, B7-1.5T4.2, B7-EGF" in **claim 41** is meaningless to the person skilled in the art and does not constitute a definition through technical parameters as required by Rule 6.3 PCT. A protein should be clearly and unambiguously characterised, e.g. by reference to technical features or to a deposit number. In a broad interpretation the reference to "at least part" includes any known "TBP". For example, it embraces also the TBP disclosed in D7 (D7, p. 12431, 1st column, 2nd paragraph). Consequently, **claim 41** does not fulfil the requirements of Article 33(2) PCT.

10. The claims, directed to a method of treating cancer (**claims 24, 25, 28, 30 and 33**), to a TBP for the use in a medical application (**claims 42-44**) or to the use of a

TACSM as a target for cancer therapy (**claims 45 and 46**) appear to be concerned with mere technical variations of the not novel subject-matter of **claims 1-23, 26, 27, 29, 31, 32 and 34-40**. Especially in this case since the principal medical applicability for vectors comprising TBPs and their corresponding peptides have already been referred to in D7 (see D7, p. 12430, right column, second paragraph- left paragraph, l. 18 and references cited therein). Consequently **claims 24, 25, 28, 30, 33, 42-46** do not fulfil the requirements of Article 33(3) PCT.

11. For the assessment of the present **claims 24, 25, 28, 30, 33 and 42-46** on the question whether they are industrially applicable, no unified criteria exist in the PCT. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a compound for the manufacture of a medicament for a new medical treatment.

Re Item VIII

12. The claimed subject-matter is defined mainly in functional terms. An independent claim must be comprehensible from a technical point of view and must define clearly the object of the invention, that is to say, include all the essential features thereof (PCT-Guideline C-III, 4.4). These essential features of the invention are entirely missing. Consequently, the subject-matter claimed do not fulfil the requirement of Article 6 PCT.
13. The application lacks clarity contrary to Article 6 PCT as the internal arbitrary designations "TBP, TASCm, TACSM, 5T4ScFv.1, 5T4Sab1, 5TvScFv-IgG, 5T4ScFv-IgE1, B7-1.5T4.1, B7-1.5T4.2 ore B7-EGF" are not recognized abbreviations. Such an entity should be clearly and unambiguously characterized by reference to technical features such as SEQ ID NO. or by reference to the deposition number.

ADDITIONAL CLAIMS

40. A process for preparing a TBP comprising expressing a NS encoding a TBP in a
5 vector according to claim 5 or any claim dependent thereon.
41. A TBP wherein the TBP is selected from a group consisting of 5T4ScFv.1, 5T4Sab1,
5T4ScFv-IgG, 5T4ScFv-IgE1, B7-1.5T4.1, B7-1.5T4.2, B7-EGF.
- 10 42. A TBP obtained by the process of claim 40 or the TBP of claim 41 for subsequent use
in a medical application.
43. A TBP according to claim 42 wherein the medical application is a diagnostic
application.
- 15 44. A TBP according to claim 42 wherein the medical application is a therapeutic
application.
45. Use of a TASCМ as defined in claim 7 or claim 8 as a prognostic factor and/or a
20 target for cancer therapy.
46. Use of a TASCМ according to claim 45 wherein the TASCМ is erb-2.

AMENDED SHEET

INTERNATIONAL SEARCH REPORTInternational application No.
PCT/US96/03908

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	MORGAN et al. Analysis of the Functional and Host Range-Determining Regions of the Murine Ecotropic and Amphotropic Retrovirus Envelope Proteins. J. Virology. August 1993, Vol. 67, No. 8, pages 4712-4721, see entire document.	1-31

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P/4642.WO CTH	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 98/ 01627	International filing date (day/month/year) 04/06/1998	(Earliest) Priority Date (day/month/year) 04/06/1997
Applicant OXFORD BIOMEDICA (UK) LIMITED et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☒ Certain claims were found unsearchable (see Box I).
2. ☐ Unity of invention is lacking (see Box II).
3. ☒ The international application contains disclosure of a **nucleotide and/or amino acid sequence listing** and the international search was carried out on the basis of the sequence listing

- ☒ filed with the international application.
- ☐ furnished by the applicant separately from the international application,
☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ Transcribed by this Authority

4. With regard to the **title**, ☐ the text is approved as submitted by the applicant
☒ the text has been established by this Authority to read as follows:

TUMOR TARGETED VECTOR

5. With regard to the **abstract**, ☒ the text is approved as submitted by the applicant
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is:

Figure No. _____ ☐ as suggested by the applicant. ☐ None of the figures.
☐ because the applicant failed to suggest a figure.
☐ because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 98/ 01627

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 24,28,30,33
because they relate to subject matter not required to be searched by this Authority, namely:
Remark: Although claims 24,28,30,33
are directed to a method of treatment of the human/animal
body, the search has been carried out and based on the alleged
effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such
an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all
searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment
of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report
covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is
restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No.

T/GB 98/01627

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C12N15/85 A61K48/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C12N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96 34969 A (CANJI INC) 7 November 1996 see abstract; figure 1 see page 7, line 5 - page 19, line 4 ---	1-5, 7-9, 13-17, 20-28
X	WO 96 15238 A (STRINGER BRADLEY MICHAEL JOHN) 23 May 1996 see abstract see page 16, line 20 - page 23, line 13 ---	1-5, 7-9, 13-25, 31-39
X	WO 94 11513 A (MEDICAL RES COUNCIL) 26 May 1994 see abstract see page 1, line 1 - page 7, line 28 ---	1-5, 13-17, 19-25, 27-39
	--- -/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

° Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

4 November 1998

Date of mailing of the international search report

04/12/1998

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Panzica, G

INTERNATIONAL SEARCH REPORT

International Application No

T/GB 98/01627

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 559 099 A (WICKHAM THOMAS J ET AL) 24 September 1996 see abstract see column 7, line 4 - column 8, line 2 see example 11 ---	1-5, 7-10, 15-18, 20-25, 27-39
X	WO 96 30512 A (RHONE POULENC RORER) 3 October 1996 see abstract see page 3, line 3 - page 6, line 28 see page 10, line 25 - page 11, line 25 see page 20, line 28 - page 21, line 15 ---	1-5, 15-17
X	WO 89 07947 A (CANCER RES CAMPAIGN TECH) 8 September 1989 see abstract see page 6 see claims ---	11,12
A	CHAMBERLAIN R.S. ET AL.: "Costimulation enhances the active immunotherapy effect of recombinant anticancer vaccines" CANCER RESEARCH., vol. 56, no. 12, 15 June 1996, pages 2832-2836, XP002083197 MD US see the whole document -----	13-39

PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C12N 15/85, A61K 48/00		A3	(11) International Publication Number: WO 98/55607 (43) International Publication Date: 10 December 1998 (10.12.98)
(21) International Application Number: PCT/GB98/01627 (22) International Filing Date: 4 June 1998 (04.06.98) (30) Priority Data: 9711579.4 4 June 1997 (04.06.97) GB 9713150.2 20 June 1997 (20.06.97) GB 9714230.1 4 July 1997 (04.07.97) GB (71) Applicant (for all designated States except US): OXFORD BIOMEDICA (UK) LIMITED [GB/GB]; Medawar Centre, Robert Robinson Avenue, The Oxford Science Park, Oxford OX4 4GA (GB). (72) Inventors; and (75) Inventors/Applicants (for US only): KINGSMAN, Susan, Mary [GB/GB]; Greystones, Middle Street, Islip, Oxon OX5 2SF (GB). BEBBINGTON, Christopher, Robert [GB/GB]; Berry Cottage, Westbrook, Boxford, Bewbury, Berks RG20 8DG (GB). ELLARD, Fiona, Margaret [GB/GB]; 42 Wil- lowside, Woodley, Reading, Berks RG5 4HJ (GB). CAR- ROLL, Miles, William [GB/GB]; 80 Alexander Close, Abington, Oxon OX14 1XB (GB). MYERS, Kevin, Alan [GB/GB]; 7 Truelocks Way, Wantage, Oxon OX12 7EG (GB).			(74) Agents: HARDING, Charles, Thomas et al.; D. Young & Co., 21 New Fetter Lane, London EC4A 1DA (GB). (81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 4 March 1999 (04.03.99)
(54) Title: TUMOR TARGETED VECTOR (57) Abstract A vector comprising a nucleotide sequence of interest ("NOI") encoding a product of interest ("POI") is described. The NOI and/or the POI is capable of recognising a tumour, such that in use the vector is capable of delivering the NOI and/or the POI to the tumour.			

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakhstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

INTERNATIONAL SEARCH REPORT

In International Application No

PCT/GB 98/01627

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C12N15/85 A61K48/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 C12N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96 34969 A (CANJI INC) 7 November 1996 see abstract; figure 1 see page 7, line 5 - page 19, line 4 ---	1-5, 7-9, 13-17, 20-28
X	WO 96 15238 A (STRINGER BRADLEY MICHAEL JOHN) 23 May 1996 see abstract see page 16, line 20 - page 23, line 13 ---	1-5, 7-9, 13-25, 31-39
X	WO 94 11513 A (MEDICAL RES COUNCIL) 26 May 1994 see abstract see page 1, line 1 - page 7, line 28 --- -/--	1-5, 13-17, 19-25, 27-39

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

4 November 1998

Date of mailing of the international search report

04/12/1998

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Panzica, G

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 98/01627

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 559 099 A (WICKHAM THOMAS J ET AL) 24 September 1996 see abstract see column 7, line 4 - column 8, line 2 see example 11 ---	1-5, 7-10, 15-18, 20-25, 27-39
X	WO 96 30512 A (RHONE POULENC RORER) 3 October 1996 see abstract see page 3, line 3 - page 6, line 28 see page 10, line 25 - page 11, line 25 see page 20, line 28 - page 21, line 15 ---	1-5, 15-17
X	WO 89 07947 A (CANCER RES CAMPAIGN TECH) 8 September 1989 see abstract see page 6 see claims ---	11,12
A	CHAMBERLAIN R.S. ET AL.: "Costimulation enhances the active immunotherapy effect of recombinant anticancer vaccines" CANCER RESEARCH., vol. 56, no. 12, 15 June 1996, pages 2832-2836, XP002083197 MD US see the whole document -----	13-39

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 98/01627

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 24, 28, 30, 33
because they relate to subject matter not required to be searched by this Authority, namely:
Remark: Although claims 24, 28, 30, 33
are directed to a method of treatment of the human/animal
body, the search has been carried out and based on the alleged
effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such
an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all
searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment
of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report
covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is
restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 98/01627

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9634969 A	07-11-1996	AU 5723696 A CA 2218390 A EP 0827546 A	21-11-1996 07-11-1996 11-03-1998
WO 9615238 A	23-05-1996	AU 687271 B AU 3875495 A CZ 9701442 A EP 0792354 A HU 77472 A	19-02-1998 06-06-1996 15-10-1997 03-09-1997 28-05-1998
WO 9411513 A	26-05-1994	AU 690085 B AU 5430794 A CA 2149309 A EP 0670899 A JP 8503132 T	23-04-1998 08-06-1994 26-05-1994 13-09-1995 09-04-1996
US 5559099 A	24-09-1996	AU 684220 B AU 3212995 A CA 2198861 A EP 0778889 A JP 10505242 T WO 9607734 A US 5712136 A US 5731190 A	04-12-1997 27-03-1996 14-03-1996 18-06-1997 26-05-1998 14-03-1996 27-01-1998 24-03-1998
WO 9630512 A	03-10-1996	FR 2732348 A AU 5402096 A BR 9607928 A CA 2214451 A CZ 9703080 A EP 0817845 A HU 9801221 A NO 974449 A SK 131197 A	04-10-1996 16-10-1996 09-06-1998 03-10-1996 14-01-1998 14-01-1998 28-08-1998 26-09-1997 06-05-1998
WO 8907947 A	08-09-1989	AT 123652 T AU 3353989 A DE 68923027 D EP 0336562 A EP 0403559 A	15-06-1995 22-09-1989 20-07-1995 11-10-1989 27-12-1990